

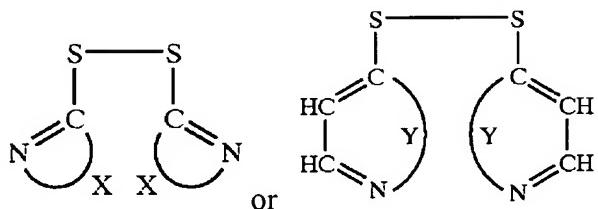
Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

These amendments introduce no new matter and support for the amendment is replete throughout the specification and claims as originally filed. These amendments are made without prejudice and are not to be construed as abandonment of the previously claimed subject matter, or agreement with any objection or rejection of record.

Listing of Claims:

1. (Currently amended) A method for modulating an immune response comprising:
identifying an individual in need of immune response modulation;
administering to ~~an~~the individual in need of immune response modulation an effective amount of a thione-forming disulfide comprising



wherein X and Y represent atoms necessary to form a five-membered or six-membered substituted or unsubstituted heterocyclic ring;

wherein the immune response is selected from the group consisting of: a cellular response, a humoral response and an innate immune response; and,

wherein the individual is other than an individual infected with a retrovirus or HIV; thereby modulating the immune response.

2. (Original) The method according to claim 1 wherein the immune response is a cellular immune response.

3. (Withdrawn) The method according to claim 2 wherein the cellular immune response is a T cell response and wherein cell populations are increased or lymphoproliferative activity is increased.

4. (Cancelled) The method according to claim 3 wherein the T cell response is specific for an HIV-infected cell.

5. (Original) The method according to claim 1 wherein the immune response is an innate immune response.

6. (Original) The method according to claim 5 wherein the innate immune response comprises increasing the natural killer cell population and NK activity.

7. (Withdrawn) The method according to claim 1 wherein the immune response is a humoral immune response.

8. (Withdrawn) The method according to claim 7 wherein the humoral immune response is a decrease in B cell population or B cell response.

9. (Withdrawn) The method according to claim 8 wherein the humoral immune response is an increase or decrease in antibody secretion.

10. (Original) The method according to claim 1 wherein the immune response is biased towards a Th1-type response.

11. (Original) The method according to claim 10 wherein the Th1-type response is an increased cell population of NK cells or T cells.

12. (Original) The method according to claim 10 wherein the Th1-type response is an increased activity in NK cells or T cells.

13. (Withdrawn) The method according to claim 1 wherein the immune response is an increase in cytokine levels.

14. (Withdrawn) The method according to claim 13 wherein the cytokine is selected from the group consisting of IL-2, IFN-.gamma., IFN-.alpha., IFN-.beta., IL-12, TNF-.alpha., and TNF-.beta..

15. (Withdrawn) The method according to claim 1 wherein the immune response is an increase in chemokine levels.

16. (Withdrawn) The method according to claim 15 wherein the chemokine is selected from the group consisting of RANTES, IL-8, MIP-1.alpha., MIP-1.beta., MCP-1, lymphotactin, and eotaxin.

Claims 17 to 19. (Cancelled)

20. (Previously presented) The method according to claim 1 wherein the thione-forming disulfide heterocyclic rings comprise further heteroatoms selected from the group consisting of N, O, and S.

21. (Previously presented) The method according to claim 20 wherein the five- or six-membered heterocyclic ring comprises one or more negatively charged substituents.

22. (Previously presented) The method according to claim 1 wherein one or both of the heterocyclic rings in the thione-forming disulfide comprises a pyridinyl, pyrimidinyl, thiazolyl, or quinolinyl group.

23. (Currently amended) A method of modulating an immune response comprising:
identifying an individual in need of immune response modulation; and,
administering to ~~an~~the individual an effective amount of thione-forming disulfides wherein the compound is selected from the group consisting of: 6,6'-dithiodinicotinic acid (CPDS), 6,6'-dithiodinicotinic acid diethyl ester, 4-carboxypyrimidine-2-disulfide, diethyl 2,2'-dithiobis-(4-thiazol- e carboxylate), and 2,2'-dithiobis-isonicotinic acid;
wherein the individual is other than an individual infected with HIV; and,
wherein the immune response is selected from the group consisting of: a cellular response, a humoral response and an innate immune response.

24. (Original) The method according to claim 23 wherein the thione-forming disulfides are administered in a pharmaceutically acceptable carrier.